

Graphing Rational Functions: Worksheet #1

Find the domain, vertical asymptotes for the following rational functions.

<p>1. <math>f(x) = \frac{1}{x-5}</math></p> <p>Domain: _____</p> <p>Vertical Asymptotes or holes? Where? _____</p> <p>x - intercept: _____</p> <p>y - intercept: _____</p>	<p>2. <math>f(x) = \frac{3x^3 + 30}{2x^3}</math></p> <p>Domain: _____</p> <p>Vertical Asymptotes or holes? Where? _____</p> <p>x - intercept: _____</p> <p>y - intercept: _____</p>
<p>3. <math>f(x) = \frac{7x}{2x^2 + 9x + 4}</math></p> <p>Domain: _____</p> <p>Vertical Asymptotes or holes? Where? _____</p> <p>x - intercept: _____</p> <p>y - intercept: _____</p>	<p>4. <math>f(x) = \frac{2}{x^2 - 8x}</math></p> <p>Domain: _____</p> <p>Vertical Asymptotes or holes? Where? _____</p> <p>x - intercept: _____</p> <p>y - intercept: _____</p>
<p>5. <math>f(x) = \frac{5x^2 - 5}{x-1}</math></p> <p>Domain: _____</p> <p>Vertical Asymptotes or holes? Where? _____</p> <p>x - intercept: _____</p> <p>y - intercept: _____</p>	<p>6. <math>f(x) = \frac{2x^2 - 2x}{x^2 + 4x - 5}</math></p> <p>Domain: _____</p> <p>Vertical Asymptotes or holes? Where? _____</p> <p>x - intercept: _____</p> <p>y - intercept: _____</p>

7.  $f(x) = \frac{x^2 - 4x - 21}{x + 3}$

Domain: \_\_\_\_\_

Vertical Asymptotes or holes?

Where? \_\_\_\_\_

x - intercept: \_\_\_\_\_

y - intercept: \_\_\_\_\_

8.  $f(x) = \frac{2x^2 + x - 9}{3x^2 - 12}$

Domain: \_\_\_\_\_

Vertical Asymptotes or holes?

Where? \_\_\_\_\_

x - intercept: \_\_\_\_\_

y - intercept: \_\_\_\_\_

9.  $f(x) = \frac{12x^4 + 10x - 3}{3x^4}$

Domain: \_\_\_\_\_

Vertical Asymptotes or holes?

Where? \_\_\_\_\_

x - intercept: \_\_\_\_\_

y - intercept: \_\_\_\_\_

10.  $f(x) = \frac{13x^4 + x^2}{6x + 3}$

Domain: \_\_\_\_\_

Vertical Asymptotes or holes?

Where? \_\_\_\_\_

x - intercept: \_\_\_\_\_

y - intercept: \_\_\_\_\_

11.  $f(x) = \frac{4}{2x^2 - 11x + 5}$

Domain: \_\_\_\_\_

Vertical Asymptotes or holes?

Where? \_\_\_\_\_

x - intercept: \_\_\_\_\_

y - intercept: \_\_\_\_\_

12.  $f(x) = \frac{11}{5x^3 - 45x}$

Domain: \_\_\_\_\_

Vertical Asymptotes or holes?

Where? \_\_\_\_\_

x - intercept: \_\_\_\_\_

y - intercept: \_\_\_\_\_

**13. Challenge:** Write an equation with an x-intercept of 2, a y-intercept of 7, and a vertical asymptote at -4.